

What is claimed is:

1 A mirror substrate, wherein the substrate is made of a particle-
dispersed silicon material composed of silicon carbide and silicon, and the
surface of said substrate to be used as a reflecting surface is polished to mirror
5 finish.

2 The mirror substrate according to claim 1, wherein the Vickers
hardness thereof is 1,500 Hv or more, the 3 point bending hardness thereof is
500 MPa or more, and the thermal conductivity thereof is 100 W/m·K or more.

3 The mirror substrate according to claim 1 or 2, wherein said mirror is
10 concave.

4 The mirror substrate according to claim 1 or 2, wherein said mirror is
convex.

5 The mirror substrate according to claim 1 or 2, wherein said mirror is
planar.

15 6 The mirror substrate according to any one of claims 1 to 5, wherein the
maximum diameter of the concavities and convexities or pores on the surface
of said mirror is 40 nm or less.

7 The mirror substrate according to any one of claims 1 to 5, wherein the
maximum diameter of the concavities and convexities or pores is 20 nm or less.

20 8 The mirror substrate according to claim 6 or 7, wherein the concavities
and convexities or pores on the surface of said mirror occupy 20% or less of
the area of said mirror surface.

9 A mirror body wherein a reflecting film is provided on said mirror finish
polished surface of said mirror substrate according to claim 1 or 2.

- 10 The mirror body according to 9, wherein said reflecting film is made of
a metal.
- 11 The mirror body according to 10, wherein said metal is gold, aluminum,
silver or rhodium.
- 5 12 The mirror body according to 9, wherein said reflecting film is made of
a multilayer dielectric film.
- 13 An optical device, wherein the mirror body according to any one of
claims 9 to 12 is employed as a reflecting mirror.
- 14 The optical device according to claim 13, wherein said optical device is
10 a reflecting telescope.
- 15 The optical device according to claim 13, wherein said optical device is
a reflecting communication antenna.
- 16 The optical device according to claim 14 or 15, wherein the optical
device comprises a mirror reflecting the incident light beam and thereafter
15 focusing the incident light beam on a detector.
- 17 The optical device according to any one of claims 13 to 16, wherein the
optical device comprises a first mirror for reflecting the incident light beam and
thereafter focusing the light beam on a second mirror and the second mirror
reflecting said focused light beam and thereafter focusing the light beam on a
20 detector.
- 18 The optical device according to any one of claims 13 to 17, wherein
said optical device is exclusively made of said particle dispersed silicon
material composed of silicon carbide and silicon.
- 19 The optical device according to claim 14, wherein said detector is an

image sensor.

20 The optical device according to claim 15, wherein said detector is a photodetector.